IEEE NZ Central Section

Historical information

How was Section formed and how did it evolve – driving forces?

2005 November 30:	An inaugural meeting for the IEEE New Zealand Central Sub-Section took place, coincident with visit of IEEE President and Chairs of Technical Advisory Boards. Murray Milner was elected as Chair of the nascent Sub-Section, a Sub-Section of IEEE New Zealand South.
2006 February 21:	The first Central Sub-Section meeting was held as an audio conference with the first committee members being Murray Milner, Mansoor Shafi, Keith Morris, Duncan Hall, Richard Harris. Apologies came from Subhas Mukhopadhyay, Peter Komisarczuk, and Bob Hodgson.
Remainder of 2006:	Murray Milner chaired all 7 meetings of IEEE NZ Central Sub-Section. Murray Milner organised several well-attended technical talks. Frequently these events were held in collaboration with the Institution of Professional Engineers New Zealand (IPENZ) and the Institution of Engineering and Technology (IET). One example talk from Murray Milner was titled "Myths and Facts around Broadband".
2006 June:	Murray Milner liaised with IEEE NZ South, who provided seed funding to help the nascent IEEE NZ Central Sub-Section to become financially self sufficient
2006 July – August:	Murray Milner was involved in initiatives to evolve IEEE NZ Central from being a Sub-Section to becoming a Section
2006 November:	Murray Milner was re-elected as NZ Central Sub-Section Chair, and presented the first annual Chairman's Report, in which he noted:
	"The first year of operation for any group is always challenging.
	This year has been no exception, with all of us on a steep learning curve. The efforts have been further complicated by some difficult financial challenges throughout most of the year.
	Fortunately we have worked our way through these issues, with assistance from our brothers in the North and South regions and we are now in a reasonably healthy position.
	The move towards full section status will further enhance our position going forward.

In addition, I would like to record my thanks to our sister organizations for their help and support during the year: namely the Institution of Engineering and Technology and the Institution of Professional Engineers of New Zealand. We have held a number of joint meetings with these groups during this year and would expect to continue to do so in the future."

2007:	During this year, Murray Milner helped to organise a joint breakfast meeting at the James Cook Hotel Grand Chancellor hotel and this became an annual event for the NZ Central Section largely coordinated by Murray Milner. Also during 2007 four newsletters each of which contained a preface from Murray Milner were circulated to IEEE NZ members in the Sub-Section area.
2007 March 1:	Murray Milner formally requests a letter of support from NZ South for formation of NZ Central Section (the letter was received 2007 April 17)
2007 August 25:	The IEEE Regional Activities Board approved an application prepared by members of the committee (in particular, the secretary Subhas Mukhopadhyay aided by Murray Milner) for the elevation of the New Zealand Central Sub-Section to become a Section.

Dear Dr. Mukhopadhyay:

Congratulations! On behalf of the IEEE Regional Activities Vice President, Pedro Ray, it is a pleasure to inform you that the requirements of the IEEE RAB Operations Manual have been met, and the IEEE New Zealand Central Section has been approved. The effective date of this section formation is 25 August 2007.

The IEEE section's boundaries are defined as: within postal codes 4xxx – 6xxx.

2007 November 22:	Murray Milner was re-elected as NZ Central Section Chair
2007 December:	An event (subsequently an annual event) was organised at Massey University which involved post-graduate students in presenting in 10 minutes their research work to an audience of their peers. At this event Murray Milner acted as part of a judging panel as well as presenting certificates and prizes to participants.
2008:	IEEE New Zealand Central Section came into existence, and was deemed to be a new organisation. Murray Milner was elected as Chair of this new organisation.
2008 August:	Once again, postgraduate presentations were held for which Murray Milner participated as a judge and also distributed the prizes and certificates to participants.

2008 July 2:	The annual breakfast meeting of combined institutions (IEEE NZ Central, IPENZ and IET) took place at the James Cook Hotel. Murray Milner coordinated the event and invited the guest speaker, the National Party spokesman on ICT, who spoke on that party's policy with respect to broadband technology.
2009:	Once again, Murray Milner was elected unopposed as Chair for the IEEE NZ Central Section. Under IEEE rules this was to be the last time that Murray Milner would be permitted to take this position. Murray Milner presented a Chairman's report in each of the three newsletters distributed to members during the year. As in previous years, Murray Milner actively participated in the postgraduate seminar day and acted as a judge and presented the prizes and certificates. Murray Milner was instrumental in helping to organise the annual joint breakfast event with IET which was entitled "Governing Core Global Internet Resources" delivered by Peter Dengate-Thrush, Chairman ICANN. At the 2009 AGM of IEEE NZ Central, Murray Milner was one of several speakers who contributed to a panel of speakers who provided a brief description of what they have learned from IEEE conferences and meetings from around the world that they have participated in during that year.
2010:	Richard Harris was elected unopposed as Chair of the Section with Murray Milner as Vice-Chair. A new NZ-wide joint chapter known as the IEEE New Zealand Instrumentation and Measurement Society has been approved and was launched on 15th April 2010. Subhas Mukhopadhyay organized a one day workshop to celebrate the inauguration. The IEEE Region 10 meeting was held this year in Cebu, Philippines and was attended by delegates from all of the Sections in the Region including the three New Zealand Sections. A Joint Chapter of Communications, Signal Processing and Information Theory has also become established and recently hosted an event in Wellington in which Professor Heather Hudson spoke on "Bridging the Broadband Divide – Strategies for Rural and Developing Regions". Formation of another Chapter, viz: The IEEE New Zealand Central Section Power & Energy Society Chapter was also approved. The New Zealand Central Section was listed as one (Fourth) of the top 6 BEST R10 sections in this year's R10 MD report in terms of total membership retention (89.1%).
	We learned that the IEEE New Zealand Central Section now has a new IEEE Fellow: Associate Professor Subhas Mukhopadhyay. These are extremely rare awards and there is no fixed number either by country or otherwise on a per year basis. There were 321 Fellows awarded by the IEEE in 2010 (for effect in 2011) worldwide. Upon checking the list of IEEE Fellows it will be found that Subhas Mukhopadhyay was the only Fellow listed from New Zealand in that awards list. The citation read: "Subhas Chandra Mukhopadhyay,

Massey University, Palmerston North, and New Zealand: For development of low-cost smart sensors and sensing systems".

2011:   Richard Harris was re-elected as Chair of the Section with Murray Milner as Vice-Chair. Establishment of a Graduates of the Last Decade (GOLD) Affinity group within the Section and we have recently received confirmation from the IEEE that this group has been approved. We thanked Donald Bailey for being the mentor of the Student Branch and Chuan-Zheng Lee with Rahul Mehta for their work in organising the GOLD group. We have enjoyed the on-going success of our Postgraduate Student presentation competitions, held alternately in Massey and Victoria Universities. The Section seminar program had an extensive program with many visiting speakers from overseas and local areas. The Joint Institutions breakfast program resumed this year with a special presentation co-sponsored by IET, IPENZ and Transpower. An article in the R10 Newsletter by Massey Student Branch member Fahim Abbasi concerning his research into network security. A special IEEE Central Section sponsored course entitled "Implementing Image Processing on FPGAs" was presented by Donald Bailey and was held in Palmerston North on 23rd – 25th November, 2011. We reached a significant milestone when the Section's total membership passed 300.

Participation in the Region 10 Meeting held in Yogakarta, Indonesia as well as participation in the Sections Congress held in San Francisco, USA.

2012:   Murray Milner was elected as chair of the Section with Pawel Dmochowski as Vice-Chair. The first colloquium of the IEEE Student Branch Massey University, Turitea Campus was held on May 30, 2012 in AH3, at Massey University. Muhammad Yousuf, the Chair of the Branch welcomed members to the colloquium. The colloquium was attended by around 25 undergraduate and graduate students. Dr Gourab Sen Gupta provided a talk entitled: "Why Join IEEE?" Then a keynote address was provided by Professor Richard Harris entitled "Is ICT the villain or the hero as we search for sustainable and green living?" Each year Region 10 has a meeting of Section Chairs and this year the event was held in Kolkata over the weekend of 3 and 4 March 2012. The New Zealand Central Section was represented by Dr Murray Milner. Present also from New Zealand were the Chairs of the Northern Section, the Southern Section and The New Zealand Council Chair, Professor Richard Harris.

2013:	Murray Milner was re-elected as chair of the Section with Pawel Dmochowski once again as Vice-Chair. This year we recognised one very special member, who received a national award, recognising his services to engineering in New Zealand. The NZ Central Section congratulated Dr Mansoor Shafi, FIEEE, on becoming a Member of the New Zealand Order of Merit (MNZM) for services to wireless communication technologies. This appointment was announced on 2 June in the Queen's Birthday Honours List 2013. Dr Shafi has also been a valuable volunteer helping run the NZ Central Section over a number of years.

This was the first year that we have held the NZCS Conference Highlights event. It was held on 31 October 2013 and included a range of papers presented at two international conferences during the year, together with a panel of speakers who related their experiences from these two conferences. The two conferences involved were the IEEE International Conference on Communications (ICC) and the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP).

2014:	Mansoor Shafi was elected as chair of the Section with Richard Harris as Vice-Chair. The Joint Institutions breakfast program continued with a talk by Ian McCrae on the topic of "Health Becoming a Data Science by 2020".

At the 2014 AGM, three speakers from our Section gave invited talks which attracted a good audience.

The talks were:

- Dr Mansoor Shafi - What is 5G?
- Professor Mengjie Zhang - Evolutionary Computation and Vision Applications
- Dr Murray Milner - Advanced Healthcare Provision through Innovative ICT Solutions

The student postgraduate event was held at Victoria University on the 18th September, and there were approximately 30 presenters from across the two universities.

2015:	Mansoor Shafi was re-elected as chair of the Section with Richard Harris as Vice-Chair. The Section was recognised with the 2015 award for membership retention performance. Professor Peter Smith joined the Department of Statistics at Victoria University. Peter was also elevated to become an IEEE Fellow. This year saw the start of an initiative known as the Wellington Engineering Festival. Two sets of presentations were held in this series and IEEE members made contributions to these successful events, viz:

- 4 August, Dr Michael Donn and Dr Fabriccio Chicca on the topic of "The Architect's Dream"
- 3 November, held at Travelodge Hotel, Wellington, Prof Subhas Mukhopdhyay and Prof Hans Guesgen on the topic of "Wireless Sensor Nodes, Smart Homes and Intelligent Buildings: From sensors to computing".

On the 10 September, the traditional Joint Institutions Breakfast was, once again, a very successful event. The speaker was David Havercroft, CTO Spark who gave an excellent presentation on the topic of "Disruption".

The IEEE 2015 Region 10 Outstanding Volunteer Award was announced for Dr Murray Milner. The student postgraduate event was held at Massey University and once again attracted nearly 30 speakers from across the two universities. Our past Section Chair, (Dr Mansoor Shafi) compiled a brief set of notes to explain the issues involved in deciding how and when to insert a leap second into the way that we keep time,

2016:	Donald Bailey was elected as chair of the Section with Fernando Castellanos as Vice-Chair. Dr Mansoor Shafi became an IEEE Life Fellow on January 1. The traditional Joint Institutions Breakfast was, once again, a very successful event. The speaker was Scott Houston and his talk was entitled "From ORCS to AZURE" and it was held at the Wellesley Boutique Hotel, in Wellington. Our traditional post-graduate presentation event was hosted at Victoria University and it attracted about 30 presenters from the two universities.

History of technology

Members of the Section have made significant contributions to the history of technology in both New Zealand and internationally. Here is an abbreviated list of contributions:

Member	Contributions
Dr Murray Milner	CTO of Telecom NZ, fibre rollout in NZ, use of IT in Health, advisor to government and accreditation reviewer for tertiary education in engineering. IEEE Region 10 Outstanding Volunteer of the Year 2015. Inaugural Central Section Chair and sub-section chair when Central

	Section first being established. Chaired sub-Section 2005 – 2007. Chaired Section 2007 – 2009 and again for 2012-2013.
Prof Emeritus Bob Hodgson	Research into agricultural imaging and development of tools for pollen imaging and identification. Accreditation reviewer for tertiary education in engineering in NZ and internationally.
Dr Mansoor Shafi	Major contributions to wireless technologies internationally – recognised as FIEEE and recently made a Life Fellow of IEEE. Advisor for PhD studies at several NZ universities. Central Section Chair and committee member over many years including early sub-section activities. Chaired Section 2014 – 2015.
Prof Emeritus John Hine	Contributed to the establishment of the Internet in NZ. He led the group that introduced international networking to New Zealand in 1985. Throughout the nineties he was involved in the development of the Internet in New Zealand, the Pacific and internationally. In the late nineties I was on the Board of NetLink, an ISP, and Domainz, the company that initially managed New Zealand's domain name space. In 2000 he chaired a working group that designed the New Zealand DNS Registry System. He is a Fellow of InternetNZ.
Prof Janina Mazierska	Pioneered the field of microwave measurements of low loss materials – recognised as FIEEE. She played a significant role in IEEE senior management – especially for Region 10.
Prof Subhas Mukhopadhyay	Sensor technologies and monitoring of elderly health – recognised as FIEEE. Served as Secretary during Sub-section and early Section years for the Central Section.
Prof Emeritus Richard Harris	Teaching, research and consultancy in Teletraffic Engineering and communication network planning, including courses for industry held throughout Asia and Middle East. Served as committee member during sub-section and section years. Served as Sub-section and Section vice-chair (2006-2009) later as Section chair (2010-2011) and NZ Council Chair (2012 – 2013). Accreditation reviewer for tertiary education in engineering both within NZ, Australia and Malaysia over the past decade.
Prof Donald Bailey	Research and teaching of FPGA technology in image processing. Short courses in FPGA for IEEE. Section Chair (2016).

Record of principal elected officers since establishment

Year	Chair	Vice-Chair	Secretary	Treasurer
2006 Sub-section of NZ South	Murray Milner	Richard Harris	Subhas Mukhopadhyay	Duncan Hall
2007	Murray Milner	Richard Harris	Subhas Mukhopadhyay	Duncan Hall
2008 -Section Status	Murray Milner	Richard Harris	Subhas Mukhopadhyay	Duncan Hall
2009	Murray Milner	Richard Harris	Subhas Mukhopadhyay	Gourab Sen Gupta
2010	Richard Harris	Murray Milner	Pawel Dmochowski	Gourab Sen Gupta
2011	Richard Harris	Murray Milner	Pawel Dmochowski	Gourab Sen Gupta
2012	Murray Milner	Pawel Dmochowski	Gourab Sen Gupta	Donald Bailey
2013	Murray Milner	Pawel Dmochowski	Chuan-Zheng Lee	Donald Bailey
2014	Mansoor Shafi	Richard Harris	Donald Bailey	Ramesh Rayudu
2015	Mansoor Shafi	Richard Harris	Donald Bailey	Ramesh Rayudu
2016	Donald Bailey	Fernando Castellanos	Xiang Gui	Ramesh Rayudu

Note: 2012 – 2013: Richard Harris was nominated by the NZ Central Section and subsequently held the position of the NZ Council Chair. (2-year appointment)

Additional Committee Members 2006 – 2016

Year	Additional Members
2006	Mansoor Shafi, Keith Morris
2007	Keith Morris, Bob Hodgson, Serge Demidenko, Colin Klenner, Mengjie Zhang, Mansoor Shafi, Greg Bruce
2008	Keith Morris, Bob Hodgson, Peter Komisarczuk, Mansoor Shafi, Greg Bruce, Mengjie Zhang, Edmond Lai
2009	*Webmaster:* Keith Morris *Committee:* Mansoor Shafi, Gideon Gouws, Mengjie Zhang, Sajal Palit, Theresa Shaw(WIE),
2010	*Webmaster:* Keith Morris *Committee:* Mansoor Shafi, Edmund Lai, Ramesh Rayudu, Fahim Abbasi, Mengjie Zhang, Winston Seah, Subhas Mukhopadhyay, Sajal Palit, Christopher Hollitt, Theresa Shaw(WIE)
2011	*Webmaster:* Keith Morris *Membership Officer:* Aaron Reid *Student Representative:* Fahim Abbasi *Committee:* Mansoor Shafi, Gideon Gouws, Mengjie Zhang, Winston Seah, Christopher Hollitt
2012	*Webmaster*: Keith Morris *Membership Officer:* Aaron Reed *Student Representative:* Fahim Abbasi *Committee* Richard Harris, Chris Hollitt, Chuan-Zheng Lee, Rahul Mehta, Winston Seah, Mansoor Shafi, Mengjie Zhang, *(GOLD):* Chuan-Zheng Lee
2013	*Webmaster*: Keith Morris *Membership Officer:* Aaron Reed *Student Representative:* Fahim Abbasi *Committee* *Immediate Past Chair and NZ Council Chair :* Richard Harris *Massey Student Branch Chair* Ayesha Hakim *Victoria Student Branch Chair* Henry Williams *GOLD Affinity Group Chair* Rahul Mehta *Joint NZ Instrumentation and Measurement Chapter Chair:* Ian Woodhead *Joint Communications, Signal Processing and Information Theory Chapter Chair* Paul Teal *Power and Energy Chapter Chair* Ramesh Rayudu
2014	*Committee:* Pawel Dmochowski, Terence Betlehem, Gourab Sen Gupta, David Balduzzi, Sarath Chandran, Yi Mei *Student Activities:* *Massey Branch Counsellors:* Donald Bailey + Gourab Sen Gupta *Victoria Branch Counsellors:* Mengjie Zhang + Ramesh Rayudu *Victoria Branch Chair:* Harsh Tataria *Membership development:* Aaron Reid *Women in Engineering:* Bing Xue *Young Professionals:* Sudhir Singh *Awards Coordinator:* Duncan Hall

	Industry Coordinators: Duncan Hall and Murray Milner *Webmaster:* Richard Harris
2015	*Committee:* Pawel Dmochowski, Terence Betlehem, Gourab Sen Gupta, David Balduzzi, Sarath Chandran ,Yi Mei *Student Activities:* *Massey Branch Counsellors:* Donald Bailey + Gourab Sen Gupta *Victoria Branch Counsellors:* Mengjie Zhang + Ramesh Rayudu *Victoria Branch Chair:* Harsh Tataria *Membership development:* Aaron Reid *Women in Engineering:* Bing Xue *Young Professionals:* Sudhir Singh *Awards Coordinator:* Duncan Hall *Industry Coordinators:* Duncan Hall and Murray Milner *Webmaster:* Richard Harris
2016	*Committee:* *Women in Engineering:* Bing Xue *Young Professionals:* Sudhir Singh, Yi Mei *Massey Branch Counsellors:* Donald Bailey + Gourab Sen Gupta *Victoria Branch Counsellors:* Mengjie Zhang + Ramesh Rayudu *Student Branch Chairs:* Harsh Tataria - Victoria University, Hemant Ghayvat - Massey University. *Industry Coordinators:* Murray Milner & Fernando Castellanos (collaborator) *Webmaster:* Richard Harris

Membership Growth 2005 - 2015

	REGION 10									
	GEOCODE				SECTION					
Year	R	C	S	SS	SUBSECTION	H	F	SM	M	AM
	R0	03	39		NEW ZEALAND SOUTH					
2005	R0	03	39	01	New Zealand Central	<0>	<2>	<12>	<117>	<9>
2006	R0	03	39	01	New Zealand Central	<0>	<3>	<12>	<121>	<9>

	REGION 10									
	GEOCODE	SECTION								
		SUBSECTION	H	Fellows	Senior Members	Members	Graduate Student Members	Associate Members	HIGHER GRADE SUBTOTAL	Student Members
2007	R00302	New Zealand Central	0	3	19	162	16	16	216	8
2008	R00302	New Zealand Central	0	3	21	185	29	14	252	14
2009	R00302	New Zealand Central	0	2	23	193	28	12	258	16
2010	R00302	New Zealand Central	0	2	25	199	37	11	274	14
2011	R00302	New Zealand Central	0	3	25	210	40	14	292	18
2012	R00302	New Zealand Central	0	3	31	192	44	15	285	10
2013	R00302	New Zealand Central	0	3	33	202	36	8	282	12
2014	R00302	New Zealand Central	0	3	32	202	36	6	279	6
2015	R00302	New Zealand Central	0	4	31	204	35	6	280	7

A brief history of Technical Society Chapters

There are currently three chapters directly associated with the Central Section:

- Joint Chapter in Signal Processing and Information Theory
- Power and Energy Society Chapter
- Computational Intelligence Chapter

In addition to the above chapters that are directly affiliated with their respective IEEE Societies, our Section is actively involved in National (New Zealand) Chapters affiliated with other major IEEE Societies including:

- IEEE Communications Society
- IEEE Instrumentation and Measurement Society

Background

On 15 June 2009, the Joint Chapter on Communications, Signal Processing and Information Theory was formed. The first event of the Chapter took place on the 13th May 2009 with a presentation from Professor Bastiaan Kleijn, Massey University. There were over 50 IEEE members in this Section who belonged to one of these three Societies. This chapter set out to organize technical activities that reflect the interests of a substantial portion of the total membership in NZ Central Section. In 2014, plans were made to reorganise this Chapter in order to integrate members with Communications interests with the NZ-wide Communications Society and form an additional Chapter to accommodate the remaining interests from the original Joint Chapter. A new Joint Chapter in Signal Processing and Information Theory was formed under the IEEE New Zealand Central Section on 15th June 2009, after this split, in order to cover this area of interest among the membership.

Two Technical Meetings of the IEEE New Zealand Central Section Joint Chapter on Signal Processing, Communications and Information Theory were held in 2012, with keynote speaker Professor Steve Elliott at the Victoria University of Wellington
- Feedback control of vibration in aircraft and in the ear, Monday 13 Feb 2012.
- Personal audio and active control of sound in the environment, Tuesday 14 Feb 2012.

On 15 April 2010, the IEEE Instrumentation and Measurement Chapter was formed. The Chapter was launched with an event that was held at Massey University, Palmerston North campus. The event was a one day workshop entitled "Sensors and Instrumentation Research in New Zealand" and it provided a common forum for interested people to hear about and discuss research in Instrumentation and Measurement undertaken by their fellow colleagues. Massey University along with The University of Auckland, announced that the 9th International Conference on Sensing Technology (ICST 2015) was to be held on December 8th to 10th, 2015 in Auckland, New Zealand. ICST 2015 was planned to provide a common forum for researchers, scientists, engineers and practitioners throughout the world to present their latest research findings, ideas, developments and applications in the area of sensing technology. ICST 2015 included keynote addresses by eminent scientists as well as special, regular and poster sessions.

In July 2010, the IEEE Power & Energy chapter for the Section was established. The inaugural event for the Chapter was a special workshop conducted by Dr Bruno Meyer who was Deputy Director Key Accounts, RTE (France), and IEEE Fellow / IEEE Distinguished Lecturer. The workshop was entitled," Smart Grids and Demand Side Management". In subsequent years, the chapter has held a large number of technical meetings and has also jointly contributed to IET sponsored events in the field of power and energy.

The effective date of the formation of the IEEE NZ Central Section Computational Intelligence Society Chapter was 3 December 2013. On Monday 10 February 2014 at Victoria University of Wellington, the IEEE Computational Intelligence Chapter at IEEE New Zealand Central Section had its first event - IEEE CIS Vice President, IEEE Distinguished Lecturer, Prof Yaochu Jin from University of Surrey, UK, delivered a seminar on "Surrogate-Assisted Evolutionary Optimisation of Expensive Problems". Later, about 10 members from this Chapter attended the 2014 IEEE World Congress on Computational Intelligence in Beijing from 6-11 July, followed by the IEEE CIS AdCom meetings. They had 12 papers presented at the conference, which was very successful. (The IEEE World Congress on Computational Intelligence (IEEE WCCI) is the largest technical event in the field of computational intelligence.)

Student activities

The first Student Branch was begun at Massey University in 2007 and has continued to the present day. The first event was a post-graduate presentation day event on 11th December 2007. During the following years students from both Massey University and Victoria University of Wellington participated in what became an annual postgraduate presentation event which has proven to be a major highlight in the Section's calendar ever since. It was decided to form a second Student Branch for the Victoria University's students and this was initiated on 22nd October 2012 at Victoria University and also continues to the present day. Activities have varied over their lifetimes and depended heavily upon contributions of post-graduate students. The membership also has fluctuated as active members graduated and departed for other employment both locally and overseas. It has been difficult to get undergraduate members interested in joining the Branches due to other competing priorities of study and employment for this group. Depending on the enthusiasm and drive from the student leaders at the time, the level of activity has increased and decreased for both groups.

Growth of Student membership and Student Branches

As noted above, membership has tended to fluctuate as new students arrive and other students leave after graduation and when very active students depart there can be a gap in recruitment and interest. Fortunately the annual student presentation day referred to below has assisted in keeping numbers relatively stable. NZ is subject to fluctuations in overseas student numbers and hence the post-graduate population rises and falls as a consequence of economic events in both NZ and overseas countries – particularly where funding is involved as scholarships are relatively difficult to secure at NZ universities and there is reliance on overseas countries and industries to provide funding for incoming overseas students.

The following table extracted from the earlier table shows the fluctuations in student numbers within the Central Section:

Year	Graduate Student Members	Student Members	Total
2007	16	8	24
2008	29	14	43
2009	28	16	44
2010	37	14	51
2011	40	18	58
2012	44	10	54
2013	36	12	48
2014	36	6	42
2015	35	7	42

The peak around the period from 2010 to 2012 can be partly attributed to an influx of Pakistan Tertiary Education sponsored students to Massey University and their numbers fell from 2013 as most of these students began to graduate and return to Pakistan. Most local students seem to find jobs in the country and do not continue with post-graduate studies at our universities – frequently because they need to pay off student loans as education in NZ is not free and scholarships are rare and hard to get.

Key achievements such as student functions, congresses etc.

A joint meeting was held in 2016 between students and the recent graduate affinity group (formerly known as GOLD but now known as Young Professionals) where experiences could be shared and industry links established that could enable future employment opportunities.

Student Branch members contributed to several student congresses held in both NZ and Australia and each of those events was considered a great success. NZ congresses were held in Auckland and largely run by IEEE NZ North Section students and volunteers.

Section and Student Branch organised competitions for students

Among the proud achievements associated with the Student Branches in Central Section have been an annual Post-graduate Presentation Day. Massey and Victoria University students take part in an all-day competition with book voucher prizes for the best presentations and specially prepared certificates are handed to all participants. A tradition established by the Central Section has been to reimburse all participants for their student IEEE membership fees upon production of their receipts. This has assisted in retaining membership of the IEEE after graduation as they would wish to continue benefiting from their association with the IEEE. The event enables students to practise their presentation skills in a non-threatening environment and to share experiences and research knowledge between their peers. Lunch and refreshments are also provided to the participants. Judges for the competition are drawn from university staff members and Section committee with much of the organisation for the event being handled by the students themselves. The number of participants presenting has grown through the years and in 2016 there were about 32 presenters from the two universities and the talks were of very high quality.

Affinity Groups
We have an active group supporting our recent graduates:

- Young Professionals - formerly known as GOLD (Graduates of the Last Decade) Affinity Group
- Women in Engineering Affinity Group is under development but not formally established at this time.

Young Professionals Affinity Group

In November 2011, we successfully established the GOLD Affinity Group with the enthusiastic efforts of Chuan-Zheng Lee and Rahul Mehta. Our Section, although small, had effectively 45 eligible members and events were quickly formulated to support the ongoing development of this Group. In October 2012 a very successful event was organised by the GOLD Group in which a presentation was made by Dr Murray Miner entitled "Essential skills for successful engineers" at Victoria University. Unfortunately, there was a brief period of inactivity during 2014 as the two key instigators mentioned earlier went off to pursue their individual careers leaving the Group without leadership. GOLD was rebranded by the IEEE as "Young Professionals" and new leadership has emerged to look after the group within the Section.

Women in Engineering Affinity Group

We have had several attempts at implementing a Women in Engineering Affinity Group. Our first attempt was in 2009, but unfortunately, the leader of this group, Theresa Shaw) could not continue and nobody was found to replace her and carry on with development until 2014 and a new leader (Bing Xue) has been found who is attempting to revive the group and organise some functions. She recently participated in a WiE conference IEEE WIECon-ECE 2015, Dhaka, Bangladesh, December, 2015.

IEEE Fellows in the New Zealand Central Section

A number of IEEE Fellows were awarded this distinction either whilst they were members of the Central Section or who later joined the Section as members. A few have moved to other IEEE sections or regions since these awards were made and some have remained within the Central Section and continue to make a contribution.

- Dr Mansoor Shafi (1993)- Recently awarded Life Fellowship of the IEEE (2015)
- Professor Bastiaan Kleijn (1999)
- Professor Janina Mazierska (2005) - First woman IEEE Fellow. She has now returned to Australia (James Cook University)
- Professor Subhas Mukhopadhyay (2010) - Now moved to Australia (Macquarie University)
- Professor Peter Smith (2015)

The following photos show the Fellows associated with our Section since formation.

Dr Mansoor Shafi   **Professor Bastiaan Kleijn**   **Professor Janina Mazierska**

Professor Subhas Mukhopadhyay   **Professor Peter Smith**

Photographic Records

Queen's Birthday Honours List 2013

The NZ Central Section congratulated Dr Mansoor Shafi, FIEEE, on becoming a Member of the New Zealand Order of Merit (MNZM) for services to wireless communication technologies. This appointment was announced on 2nd June in the Queen's Birthday Honours List 2013. Dr Shafi has also been a valuable volunteer helping run the NZ Central Section over a number of years, including two years as Section Chair (2014 – 2015). He is seen here accepting his award from the New Zealand Governor General, Lt Gen Rt Hon Sir Jerry Mateparae.

Region 10 Outstanding Volunteer Awards 2015

Congratulations to Dr Murray Milner as the Region 10 Outstanding Volunteer in 2015. A presentation was made to Murray Milner by the current Chair of the Central Section, Donald Bailey, at the 2016 Joint Institutions Breakfast meeting. Donald Bailey reads a citation outlining significant achievements by Murray (below left) and presents the award (below right).

Joint Student and Young Professionals Social Networking Event

This was an informal social event that took place on 1st April, 2016 and aimed at connecting young engineers (under the age of 30) from industry practising in any of the IEEE fields of interest to graduate students of the IEEE NZ Central Section. The event encouraged networking and collaboration between the Student and Young Professionals in the greater Wellington area and proved extremely useful to the graduate students who wish to seek employment in any of the IEEE fields of practice upon completion of their graduate studies. The event was also aimed at increasing the Student and Young Professional membership count, as it presented an ideal opportunity for those not aware of the IEEE and its practices. 13 students and 7 industry professionals attended the event. Here are some photos taken at that event:

Post-Graduate Presentation Events

These events have been held since December 2007. Many of these presentations have been documented extensively with images of each individual presenter on the Section's website. These images are too numerous to provide in this historical record, but a few general images are presented below of a few award presentations together with some the entire group photos:

Attendees listen to the postgraduate presentations on 31st August 2010.

IEEE Section Vice-chair, Dr Murray Milner, presented the winner's certificate and book voucher to Keith Cassell from Victoria University at the August 2010 event.

Attendees and judges listen to the postgraduate presentations during the August 2013 session.
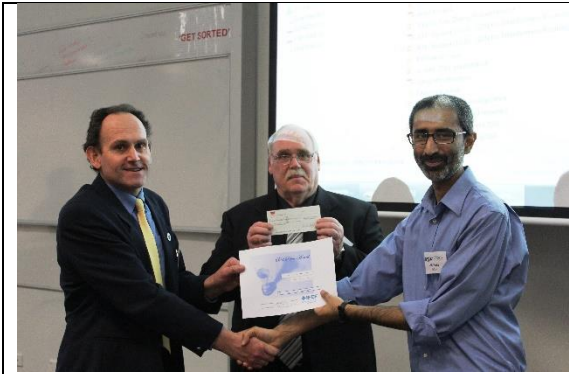

IEEE New Zealand Council Chair, Professor Richard Harris, presented the winner's certificate and $100 book voucher to Rachel Hunt from Victoria University during the August 2013 post-graduate session.

Presentation to winner at the 2016 postgraduate event by Donald Bailey (Left), Dr Murray Milner (Centre) and Harith Al-Sahaf (Right)

Presentation to runner up at the 2016 postgraduate event by Donald Bailey (Left), Dr Murray Milner (Centre) and Alexandra de Silva (Right)

Presentation to runner up at the 2016 postgraduate event by Donald Bailey (Left), Dr Murray Milner (Centre) and Ali Raza Anjum

Attentive audience at the 2016 Post-graduate Presentation day at Victoria University

Joint Institutions Breakfast Events

These events have been held annually for a number of years with the exception of only one year when speakers became unavoidably unable to give a presentation and it was too late to find alternative speakers at short notice. The event is co-hosted by the IEEE Central Section, IPENZ and IET with members of these 3 institutions given a discounted entry fee. The 2016 event was well attended and here are images from that event:

Speaker for the 2016 event was Scott Houston who spoke on the topic "Orcs to Azure – the Green Button Story".

Acknowledgements